

FARM FACTS

Astragalus in Saskatchewan

Produced by Saskatchewan Agriculture and Food

Astragalus, or Milk Vetch, a member of the Leguminosae (Legume Family), includes many species that grow around the world. There are several which are native in Saskatchewan, although none of the native species are grown commercially and some (such as locoweed) are known to be poisonous, particularly to livestock.

Chinese Milk Vetch, *Astragalus membranaceus*, is native to China, where it is known as Huang Qi or Huang Ch'i. In the past decade it has become a popular medicinal plant in North America and has recently been planted in Saskatchewan.

The Plant



Astragalus is an herbaceous perennial that appears fully hardy in Saskatchewan. The multi-stemmed plant grows to about 1 to 1.5 m in height and has alternate, compound leaves composed of 12 to 18 pairs of small leaflets. Mature plants have yellow pea-like flowers in long clusters during early summer. These are followed by seedpods growing up to 15 cm in length. The roots are rhizomatous, black with a yellow core, have a peculiar odor and a sweetish taste.

Medicinal uses

Astragalus has recently come into prominence in North America for its medicinal properties, but it has long been known in traditional Chinese medicine to invig-

orate vital energy and strengthen resistance to disease. There, the dried roots are frequently sold and are boiled along with other herbs or even chicken broth to prepare a tonic or medicinal soup. The roots are used for its immunostimulant, antimicrobial, cardiogenic and diuretic properties. Because it increases production of white blood cells, it has been found useful in therapy for cancer patients that have undergone chemotherapy or radiation. It has also been used for treating chronic diarrhea and reducing blood pressure, and for treating the common cold. Astragalus root contains polysaccharides (astragalans), saponins (astragalosides), flavonoids, phytosterols and essential oil, as main compounds.

Polysaccharides and saponins are believed to be biologically active constituents. Astragalus has been marketed as dried roots, ground roots in tablets and capsule form, liquid extracts, or as a component in herbal teas. Use of flowers and foliage has also been reported, but documentation of their value is lacking.

Propagation

Astragalus is propagated by seed. Seeds typically germinate in two to four weeks and germination rates of 50 to 60 % have been experienced locally. The seeds benefit from scarification and soaking in water overnight before sowing. Planting can be done in fall or early spring, directly in the field. Seeding in greenhouse plugs has also been successful, provided deep containers and well-drained media are used. The plants are somewhat prone to transplanting shock. Transplanting should take place before the plants become rootbound in their containers.

Culture

Limited information is available on the culture of *Astragalus* in Saskatchewan. The plants are adapted to deep, alkaline soil and need very good drainage and full sun. Although drought tolerant, *astragalus* should receive reasonable moisture for good yields. Fertility requirements are thought to be low. A sowing rate of 6-8 kg/ha for direct sowing, or 3-4 kg/ha for transplants, is recommended. Plants should be spaced about 25 cm apart in rows 75 – 100 cm apart. During the summer *astragalus* requires cultivation to control weeds, and mini-

mal irrigation. As yet, pests have not been a problem in Saskatchewan. In wet areas, plants may develop root rots. Young seedlings are especially susceptible. Greenhouse plugs have been susceptible to spider mites.

Harvesting and Drying

The roots are not harvested until the fall of the third to fifth year. When mature, the roots can be more than a meter long. They are dug by hand or machine. Lateral roots and the crown are trimmed off, then the main root is cleaned and partially dried. They are then sliced into 0.5 cm slices and dried further. This may take 7 to 10 days. Dryers at temperatures below 40°C may be used to accelerate drying. Root yields of 7000 kg/ha have been recorded elsewhere.

Marketing

The market in North America is just developing and growers should look for potential buyers well in advance. There are currently no buyers of *astragalus* in Saskatchewan. Prices of dried root have been in the \$8-12 range or more for organic product, but prices can vary considerably from year to year and may decrease as growers become more plentiful in North America.

Related Plants

Astragalus mongholicus (or *A. membranaceus mongholicus*) is also called Huang Qi. In China it is used for the same purposes as *A. membranaceus* and may be mixed with it.

Astragalus chinensis, also called Chinese Milk Vetch, is known as Sha Yuan Zi in China. This species is grown for its seeds rather than its roots. It has not been grown in Saskatchewan.

Astragalus complanatus is also grown for its seeds, and is used in traditional Chinese medicine to improve liver and kidney function and to improve visual acuity. At present it is not being grown here.

Astragalus chrysopterus, *A. floridus*, *A. tongolensis* and *A. adsurgens* are other species that may be used medicinally in China.

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